Experiemental work job. Engineering n diploma ncv. Nated ucpd continued assessment supplemtaire job

-**1. requirements: experimental job process learners reference job text book exampt experience**
Job duty relate reviews textbook
-requirement : industrial construction job sub contractor compagny and join venture and client property ownership
Municipality:

1.1 Building process

-task mode | task name| durations | start | finish ,month day week|

- no commercial project start 2016 site hand over , duration 116 day ,Fe 15 Jul 25 ,M,t,w,f,s,s
- site establishment : 15 days Feb 26 March Mar 07
-Appointment/ procurement established latdown area c,15 days ,Feb 16 ,Mar 07 ,,
Establish latdown area 5 days ,,clear grub footprint 4 day ,, excavate to expose service ,2 days
- earthworks site 26 March ,,Rio scrafy 4 days Mar 08
Cut to fill ,C4 layerworks compact ,G layerwoy compact ,5 days ,mars G 7 layerworks compact. 5 days ,, stabilisation 6 days ,,
- roadworks external + entrance /exiit 110days ,Feb
Survey 4 days ,traffic accommodation 4 days create temport diversion ,creat temporary water control measures 7 ,, cut to fill externt ,cut fill external , layerworks entrance exit , stabilisation external , stabilisation entrance exit ,concrete kerning ,channeling culvert drain ,prime coat external , print coat external ,prime coat entrance exit ,ashpal surfacit external , road marking external entrance ,road sign external entrance exit ,testing material workmanship external ,entrance exit ..
- forecourt. 64 days. April ,,excavate canopy bases. 3 days..
Excavate stormwater trenches manholes ,steelfix formwork hold bold to canopy base ,concrete to canopy base ,stormwater pipe bedding prep ,stormwater pipe installation 4 days , stormwater kerb inlet junction ,manholes ,soulcret to stormwater excavation ,install forecourt kerning ,install canopy ,prime coat to forecourt up bonashpak surfacing upong completion road ,, shop excavate superstructure foundation

Lifting crane dig system

,- construction electric lighting wiring earthing. .. digital automate , securite
Construction mechanical
Air conditioning fridge

Construction. Hydraulic ,

-Security safety metropolice. Building fencing CCTV defender. Physical plumbing tarrage control fire safety
City power installation supply

Policy
Lif
..projet ,task ,split milrstt,summary project summary external task , external milestone inactive task , inactive task ,inactive milestone , inactive , Manuel task , duration only ,Manuel summary rollup manual summary start only ,finish dealine

- drawing revisions , rev ,date ,by revision description.
- drawing description : BP service station modderfotein ,ground floor ,
- roof level
- explanation : general notes ,
Policy
1.2 Do not scale this drawing : information. Is top be checked and verified against drawing details and schedule where are referred to any discrepancies found must be reported to the Engineering without delay so that rectification can be effected level indicated wether existing or news must be checked on site prior to the execution of any work no ammandement shall be made to this drawing with the permission of the engineering.this drawing is copyright and remain the property of the Engineering..
- steelwork construction note :
Unless otherwise noted :
- all steelwork to be sabs @43@ gr ,S355JR..
- fabrication construction tolerance to comply to South Africa structurak steelwork specifications blck book
- all welding comply with sabs code practice ,044 vj
- for steelwork below floor to painted with coat bitumatis. Paint to dry film

thickness of 50 micrometre .
- all weld to be 6 mm continue filled bolting .
- all bolts shall have a minimum of 2 thread project thoug the nut not more than ,5 .
- bolts are to be fitted with flat or tapered washers as the case may require on the nut face ,
- hardness washer are used in junction with ,8,8 bolts ,booking purfuns girtd sG rod be m26 ,,booking to structure to M20 gr
- fabrication to provide packing to the undersigned of base plate in order to line lovej fabrication is to notify main contribut structure has been lined levek for ground .
- in the case of incorrect holding down bolt position the fabrication must liass with the Engineering to obtaining the rectification details.
- in the case of incorrect holding down bolt posit fabrication must liass with Engineering to obtaining the rectification details.
- the erector must if necessary use temport bracing to ensure the stability of the structure .
- the fabricator is to provide everything necessary for the fabrication and erection of the compte project including delivery site bolts and orange..
-corrosion protection note :
Corrosion protection be in accordance with sabs 1200hc,before shipping painting is applied wire brush tibat 3 standandar or ligth blast to say # to ensure milk scale rust is removed.
- steelwork must be dry and free form all blemishes such and grease,painting must carried out under supervision and may applied ,,apply one coat of approval prime zinc phosphate to sabs 1319 to a dry film thickness of 30 colour contrast to the final coast ,,apply one coat of approval enamel to sabs 639 to a dry film thickness of 39 ,colour from BAE level to 50 mm above the finished floor levek ..
1.HVAC general notes :
This drawing form part the specification and must be read in conjunction ,all ductwork to be manufactute in accordance sabs ,1238-2005 low pressure duct standard
- all duct size show are actual sheet metal size,Al supply return duct to be externally insulated all ventilation ducts ,all exposed duct to be painted ,all bends to have minimum international
- all duct shoes to be 150 mm long ,45° ,all refrigerator piping to be nearly router and installed, all drains to be 32 mm rigid PVC with a ,1:100 Min fall unless otherwise specified, all return air plenum and cassette unit to be ,naturally ventilated.
-4 builders notes :
All opining to 100mm bigger than duct sizes shows and to be made good after ductile has been installed by builder,
- all openinyti be 50 mm than grille sizes which includes ,A 20mmthk timber frame all about opening by builder
- sleeves in walls in slabs and beams for refrigerator piping and drain to be

made good after service have been instt by builder.
- for builderwork details refer to dwg . POOO/BW/OI,,builders to ensure that safe access to all mechay, equipment provide to architecture detail fans located aboves fly's plash plastered , ceiling to be provided with a hinged ,600×66 access Panek by ceiling contractor to architecture detail.

_____

1.3 3 key : 230 V/1/59 power supt terminating in insulator within 2 M of equipment by electrician.

380V / 3/59 phase neutral and earth power sut terminating in isolator with 1 metre of equipment by electrician.
- 239V/1)59 indoor unit power supplies terminating in isolator to unit by HVAC sub contractor capacity to be sizes to specialise ,
- on / off switch wall mounted ,CW ,25, temperature sensor sensor mounted on underside of duct,wall mounted thermostat controller ,cw 25 mm conduit ,4×4 box in wall by electrician builder, condensate drain point by plumber size ,valved water supply point by plumber size as Shir,,
African counsulting engineering,,drawn ,scale,date,contract ,draw no ,,sheet no ,,section A-A,,water downpipe

1.4 For construction:
BP modderfotein,
Revision,,rev ,,date ,,cliev : investment:
Project,,
Drawing : roof plan : date :: scale :1/40,,
Roof note,flashing again tower ,0,8;gauge chromadd with counter brickwork and covered with market acrylic waterproof ,parapet wall,gutter

1.5 Construction hydraulic petroleum
-5 Franklin fyeling systems ,step/ isr fixed , variable length:
installation and owners :
Important safety message ,warning ,caution ,
Symbols warn sign documents appear ,electric electronics hazardous ,bfpa code ,30,30,NATIONAL FIS PETROLEUM.
INSTSLLER : installer : must owners service station at which the equipment ,
- installation instructions:
The piping and underground storage tank must be installed using good standard industry practice , automotive and marine station code nfos code ,recommend Pratical for installation of underground liquid storage system petroleum equipment institut , installation of undery petroleum storage system institu installation atex approved pumps compliance ,EN60078-14,,EN600078-16,,EN60079-19,,VDE,,010

Note ,atex approved pump to installed in zone , category 1 location requirements sil ,@ certifie control review add information compliant installation for details ,
- requirements tools:
Standard 3/4" drive ratchet rencg or breaker bar no socket requirements,standard flat head screwdriver ,
- wire cutter and stripper,,
5/32" Allen wrench for securing scre in telescopic pipe couple ,
- pipe wrench for securing set in for tightening ,4 " rise ,,#
- 1/4 hex driver with socket socket and ratchet wrench or ,@/4" Allen wrench for attaching PMS ,,
- measuring tape long enough to reach bottom of the tank from ,39" to 79"
- all wiring must conform to applicable guideline code failure to comply with all applicable guideline could result in N unsafe installation use the following table for maximum wire length to wire gauge ration of submersible wiring gauge..
- Wire size | maximum run
10 gauge. | € 659 feet
 12 gauge. | 400 feet
  14 gauge. | 259
-preparation :
1 .fill out the warranty registration card return ..
If so / IST does not operate correctly or there are any question installation ,
- disconnected power to submersible pump at the electrical supplies box if already .
- tag and lock out electrical circt breakers so they are not turned on accidentally..
If installing fixed length pump variable with PMa mounted go to secure to tank if installing variable length pump continue with section ,
- if installing fixed length pump non variable without Oma punted ,
Mounting the PMA ,lay packay on flae open surfat removed ,flatten pump packiu and lay OMA end the pump in preparation for mounting,the OMA mountain hardwares pacjiy a gasket a tube of grease and four ,5/@6" screw with ,,on discharge by aligning locating pma holes notched position,tighten PMS onto discharge head using four cao screw Nd lock washer supplied a cross bolt tigthning pattern ,,before assembling pm discharge casting sure wire us property allignf could damage lead motor , IST unit without suffu

Grade to tank mounting threads ,bury depth,48"
 minus manifold height without leak detector, -11" ,
(w/ leak detector height=12.50)
Minus ,6" for top clearance (2"minimum)-6

=Maximum riser size. 31"
Length settings
14.cut cut wire tie (ß) securing the motor wire at the top of the pump , lay the wire out above pump head so that wire can feed through conduit freely ,,cut wires: faillure to cut wire ties prior settings pump length could result in damage to electrical motor wire presenting a risk of lethal electrical shock of ..
- measure from the bottom of the thank to the top of tank mounting threads subtract the distance for clearance between the PMA and the bottom of t tank ,6" recommended ,this is the length to which the pump should be extracted measure from the bottom of the riser threads to the bottom of motor end bejj ,
-6" clearence provides a 5" clearence from the pump motor end bell to the bottom of the tank once the riser is screwed into tank mounting threads.
- tank + thread measure 96"
- distance from bottom
 (bottom of riser to end bell)-6"

=Length (bottom of riser to end bell) 80"
- hold the manifold securely to surface to prevent damage while setting length.
To allow movement of the telescoping pipe verify that none of the pipe coupling setscrew are in contact with the pipe..lay a tape measure out to accurately measure the distance from the bottom of the riser to e bottom of the pump motor and bell.
Grasp the pump just above the PMA and pull firly extending to the length required..
-use care to ensure electrical conduit Aires at the top of the discharge manifold are damage during length settings if Colum pipe is extended beyond desired length have a second person retract conduit wire as Colum pipe is shortened this will prevent damat to conduit Aires…- the motor discharge more than one full rotation in either direction rotation could cause damage to the electrical motor wire presenting a risk of potentially lethal electrical shock or equipment failure.
- O- ring seals inside the locking coupling may have seal to the column pipe during shipping spin the motor discharge head sligth not more than one full rotation while pulling to loosen the o ring seals.
- once the length is correct lock the stp length by tightening all three coupling setscrew tighten the setscrew finger - tight making sure they come into ,..
- tighten each setscrew an additional full turn minimum the head of the setscrew should be flush or below flush with the outer surface of the .
-setscrews 3 places ,install setscrews ,5/32" Allen wrench. Tighten setscrew. Faillure to properly tighten the coupling setscrew at this stage could present a risk of death serious vidly injury and or equipment damage due to

movement of pipes during installation..
-PMA wiring.
-measure approximately ,6" of wire from the discharge manifold , cut off excess wire and discard ,, measure and cut wire.
- place the three wire through the contractors plug assembly from hardware pack P/ n 400391XXX,,as
- loctile is a registered trademark of Henkel..
- using the screwdriver slider the contractor plug into its seat in the discharge manifold tighten the two screw in the contractor plug to secure it in .. attach contractor plug
- strip the wire insulation back approximately,3/8" terminal block supplies, from hardware pack ,P/ n 400301xxx) connect to wire from the electrical connector orange to oragr black to black and red to res..
- terminal block are provided for wire connection on atex approved pumps for terminal block strip ,4.4-5 mm insulation from the end of the wire torque terminal screws to 0,4-0,045 NM.
- coil the wire and push into the discharge manifold cavity using care to ensure wire are not damaged on discharge manifold..
Damage to the electrical conduit wire create a risk of lethal electrical shook and equipment faillure do not use equipment if electrical wires have been damaged contract FE ,,
- tighten the duscht head cover from hardware pack P/n 400301xxx) in place using a ,3"/4 teacher or breaker bar..
- tighten discharge head cover..
-secure to tank ..
- the bottom end bell of the PMA is not designed to support the weight of the entire pump , resting or dropping the pump on this end bell mat damage the plastic end bell and plastic pump components inside damage defect Feb,
- measure the pump from the bottom of the threads riser to the bot of the pump motor and compare this to tank measure measure from the mounting flange to inside of tank bottom , sto / and riser are sized to place the intake bottom of the pump motor approxit,5 inches off the bottom of the pump .if the difference between the bottom of the pump motor and the bottom of the tank is more than the correct pump for this tank installation if it is not the correct pump and is outside the above representative..
-;faillure to use a proper thread sealing compound could result in a lack of seal where the riser thread until tank opening making it impossible to perform a tank - tightness test this may also create a potential site for fuel leak into the environment and or the containment..
- carefully lower the unit into tank and engager ..
- turning the pump in the loosening direction during the tigthning process may scrape away..
- connect the supply line piping to the discharge port in the discharge manifold assembly the discharge port is the ,2 inch not vertical opening.
- connect the electrical conduit with approved fitting per NPA 39,NFPA 39A,,NFPA. 70 the junction box ,,

- remove the junction box cover and remove the compressor seal contractor plug by loosening the screw do not remove four hole compression contactor plug is provided an all units..
- on single phase units two power wires one ground wire and a blank with cecon rod supplied to fill forth hole.
- for three phase units three power wires and one ground wire.
- verify that the power is still off at the supply box..
- pull wires from power supply into the junction box and feed through the compression seal contractor plug.
- replace the compression seal and tighten into place securely, all wiring must be done in accordance with the national electrical code
NEC ,,European ,EN ,,
- the compression seal contractor plug is not intended to replace the vapour explosion seal requirements,all materials used between the power supply box and pump junction box must be gasoline and oil resistant failure to comply with all applicable code could result in an unsafe..
- 35 single phase units: connect the ground wire to the lluf in the junction box using the wire nuts or terminate block supplies from hard pack P/ n 400301xxx, connection the wire from the power supply to the orange and black wires in junction box , a capacity is required color code .
- three phase units , except IST unit , with vs2 vs4 suffix connect the ground wire to the lug in junction box connect any three wire from the pump to any three wire from three phase power source using nuts or terminal block supplies from hardware pack,P/n ,400301xxx capacitor are not need for three phase units installation a pressure gauge in the line test port turn on the pump and read pressure gauge turn off pump at the power supply and change turn off pump and change the pump back and read pressure the electrical connector.connect ground coming from indoor three wire connector assembly to three power wires coming the variable frequency controller vfc ,capacitor are not need ,,

- warn : not installing a ground wire increased the risk of lethal electric shock and equipment failure all holes of the compression seal contractor plug must be filled with wires or cdlcin rod enable ..
-; caution the pump discharge manifold has two labej port ,one for the syphon system and one for tank a piston leak detector must be vented to tank port lower port only do not connected a piston ..detector resulted in an increase..

1.5 Approximately stp / IST specifications.
-model| description| operating pressure |

PMA length in | S.F amp|locked rotor amps|winding resistance R-B. R-O. B-

Sato 33 | 208/230V,60HZ,1ph| 27|16|3.2|11|2719|8
-stp| 200|250V,50hz,1ph|37|20,5
-389-415,50hz ,3ph ..
- symbols key :
Use a 15 if ,370V single phase ,60hz capacitor.
- use a 40 if ,379 v ,single phase ,60 Hz capacitor
- use a 15 if 440 v ,single phase 50hz capacitor
- use 40 if ,440 v single phase 50 Hz capacitor
190v ,70 Hz ,3 ph power variable speed units is output from IST ,vfc or mag vfc only are power by 200 ,- 250 ,50 or 60 Hz single ,3 phase input ,,
Use with IST vfc , no capacitor
Use with mag control capacitor ,3 phase input is required for vs .
- no capacitor is used with 3 phase pump motor assembly .
- the models listed in that table may contain ANZ ,,

- standard models | AG ,alcohol gasoline models .
- o% -10% ethanol with gasoline| 0%-85 ethanol with gasoline..
-20% MTBE with 80% ,, 20% MTB with 80% gasoline.-20% ETBE with 89% gasoline |™20% ETB ,80%
100% diesel |. 0-20% biodiesel blend or 100% biodiesel.
- manual pressure relief
- manual line relief is local in the center of stationery manifold under a brass cap all manufacture , in the piping system anything routine maintenance or troubleshoot must be performed.
Relief screw counter clockwise until come to the screw retaining ring this allow the pressure in the piping eto bleed back to storage tank next turn the screw clockwise to its original position to close the path turn snug ,do not over right..
- clamp valve check valve clamp ,, the clamp valve is located directly above the check valve inside the stationary of the submerged pump it consists lead screw with a sealing disk attack the heat scree ,,
The cavity under the 1/4" pipe plug is at fill pump pressure and product will be released through this opening the pump is equipped with a manual pressure relief use it to relieve use it to relieve line pressure priore to removed the plug for normal operation the clamp should rotated fully counter clockwise where a start washer lock place ,be sure replace the 1/4" pipe plug , during a line test the clamp valve should be rotade fully this block pressure relief alve in the check valve si..
- syphon system options..

- wiring diagram:
For submerged turbine pumps with 129 volt coil line starter circuit ..
Warning the lockout switch is not a substitute for proper lock out and tag out of electrique circuit breaker while installing or services this equipment

or related equipment..
- wiring diagram for submerged turbine pumps with three phase motor control panel ..

_____
-PMA,riser and check valve for vl and fixer lent

- item #|. part| description. |. Qty1

1 |4000125005|3/116 spiral pin | 1
2| 400015001| manual relief plug | 2
3|40021114| o- ring plug. |1
4|400627001|retaining ring. |2
5|400616001|manual relief screw. |1
6 |400333012|o-rung relief screw Bo|1
7| 400333007|o ring relieve
8|400628902| manual relief plug assemb
9| 400629902| manual relief screw ass
10|400259001|@/4 NPT pipe plug |
11|400137937| syphon check valve
12 |400221939| discharge manifold | 1
13 |™251213930| lead assembly 256"
14|purchase Loca| #/3 steel Bandung
15| 4001689xc| riser ,4 1/20Dx ,188 wall steel turning
16| purchase locally | 1/2 steel Bandung
17| 40069002 |5/16-24,7/16 set screw for vl units only.
18| I- ring motor discharge
19| 400264009|5/16-18×11)8 socket head cap screws
20|402449002| gasket ,PMS. | 1
22| PMA xxxx| pump motor assembly includes item ,35|#
24| 400982002| 3/8-16× hex head screw may purchase locally|2
24| 400981002|3/8-16×1hez head screw may purchase locakk.
25| 400196839| cover manifold assembly include .
..27|400333238| O- ring (A/G compatible)|2
-29 | 400147930| valve clamp assembly include item ,# 29/1
-39 |40174930 ,spring check valve ,|1
400988932| check valve standard,|2
Check valve standard,,check valve model r,,check valve nodej ,,check valve nodej 65 psi ,,check valve e65 modej PSU ,,
35| 152350902| OMA hard pack includes item ,21

_____
Discharge manifold assembly
Item#| part#| description. |Qty
1 |400192939|cover junction box|2
2 |40021023 | o ring |2
3 | 400655001| boot capacitor,|1

4|™49917093| capacitor assembly|2
does not | 40170933| capacitor assembly|#
5| 4001709334| capacitor assembly| @
50hz,40uf,370v,2@
N/a. Not required include
6| retain ring |™2,
7| 3/7-26 × hex head bolt | 4
8| standard lock washer
9 | 3/8 standard flat washer ..
19| 4006519| junction box assembly ..
_____&&&&&&

Item| part. | Description. | Qty
13 | 400200930| wire connector kit|. 1
14 |400589930 |cover. 1
15| 400210229| O - ring. | 1
16| 400236903| plug contractor. | 2
17| 400259002|3/8NPT pipe plug. | 1
18| 400562903 | syphon jet assembly ,E85|
19| 40021145| retaining ring. |
22|40025002| 1/8 DIA × 1/2 roll pin |
23| 40033343| o- ring
24|40033349| o- ring .
25| 400249005| 2n or sq head plug |
_____

.,item .| Part | description. | Qty
1| 40013793| syphon check valve order separately|
1
1| 40013790| syphon check valve order with stop

- control box assembly ,sto -cbs
Enclosure dimensions :
8.5H×5"w×3"D(215mm×227 mm× 76mm

- item | part. | Description. | Qty
1. | 400565001|power switch CBS |1
2| 40056001| bracket power switch ,1
3 |400158901| ligth assembly 129v CBS
ligth assembly ,249 cbbs
4| 400215931| relay 30a, 129 v
| 40027800 relay ,30A,#49 v

5 ||400241001| terminal strip |
6 | 40244@ | label termit cbbs ,1
7 | 40081690 | cover enclosure|
8 | 40082| wiring diagram CBD
Wiring diagram cbbs

1.6 1 warranty registration:
A claim under t warranty shall be made returned good authority supplied by Franklin fuej system in order to ensure that warenty claim is process in accurate time :
- returned good autt rfa number obtat from Frank fuejing systet
- name and locat of establishment where equipment was installed ,
- name address and phone servit contracts include ,
- model number and serial number equipment invilt
- date of instant and date service
- brief desct and work performed..warenty :
- type of equipment , sto. IST
- model number : serial number
- was equipment instant follot fyeling systems installation ,yes. No
If explain
- eauit function properly at start up with no leak observed. ,yes or not
- was the equipment modified in any way ,,yes or not
If yes in question explain
- installation company : .....
- name of installer : ..
- tel:.....fax:::: date of installt:...

Locaty where equipment was installed ..
- wiring diat for subnet turbine pump with ,249 volt line start circuit..
- note verify proper capacitor for .to user proper capacitor ,cause motor not start,cause poor pump perfot,
Shorten the life the the motor ..
- OPMA. model. | Capacitor | voltage rating ..

_____
Electric water heaters : product installation Nd warenty
- plumbing: all instalt of fixe electric water heater must comply with sabs #0254..
1- flush the cold water supply line connecting to water heater.
- fit the kwikot drain cock safety valve to the correct position as indicated on electric water heater.
- ensure that a 600kos rated control valve is fitted on the cold inlet side of the electrical water heater.

- vacuum breakers tray must installed as per sans 20254
- the safety valve and expansu overft pipe must self drainingabd frost free anbiant ,atmot these pipe must not inter connected and safety valve duscht must ..
- all piping class pipe insut in accoy with sans #52 and #54.
- after comply the open the water taps and purger from system check for leaks all ..
- after the heating cycle completedt check again for any leaks .
- for purpose of draining the geyser a drain cock is provide with the geyser fitting into tcold water inleyto drain the switch the power and water off attach a hosd pipe to drain outlet and open the valve on drain discibnet hot water outlet allow air into the system ..
- in the event of maintence ,unobst access clearence ,300mm clear space around the safety valve ,,,
459 mm clear space immediately in front of electrical power cover plate..
- electrical standard , all electrical must comply with sans 0142 code for the wire of premise.
1. Ensure that the supply of electricity to the electric water heater had been isolated prior to commencement of any with.
- ensure that the circuit breaker on distry board is the correct amperage rating to match kilowatt rating heater ,2kw= 25 Amo ,3 kW= 20 amps,4 kW= 25 amps

- ensure that the isolating the electric water heater is the correct amperage rating the kilowatt r rating of ,
-:ensure that electrical cable from line distrt board to the electric water heater is correct size ,minim of 25 mm.

- the plastic Allen bolt insulator is be reply after elementary replacement

- warrents that it's electric water it electric water manufacture defect warent respect heater ,in respect installation ,claim in respect of the installation of electric water , will repairs or replacement are carrier electric , warranty period will still calculate from the component remove during ,,
- the applicable warrenty period is still in force, the electric water heater is installed,used and maintaining in accordance,all products included in the installation comply with sans approved, iox rated electric water are instatynder roof covering or shelter , the electric water heater has water quality,where a geyser is wall mounted in the horizonty position ,the bracket ,90° to the alternative wall mounting holes on the geyser ,no return valve or shuty off device is installed between the pressure control and the , does not recommended wall installation of 200 and 250liyre electric water heater..

- homeowners/ customer details
- date of installation.
- physymical address.
- details of new geyser installation:
Serial no of geyser : .....capacity : ... Litre .
- code of geyser :... Type of valve used :...
Capacity : .....litre..
Code of geyser:.....type of valve used .

- tick applicable block :
Is this a new electric water heater installation , yes. Or not
Is this a replacement installation of existing or old electric water heater installation, yes or not
-detail of old geyser:
Type of geyser : .....
Serial no geyser : .....capacity : ...litre..
Code of geyser:.
Installer detail
Personal name...
,plumbing address ,postajj
- details of new geyser installation:
Type of geyser installed: ...capacity:...litre..
Serial no geyser:.....type of value used:..
Code of geyser:.....
I the above mentioned installer confirm that electric water instally carrier out ,complies with sans ,@0254..
- the warranty does cover.
@.element burnt out through commissioning without water ,
- burnout due ,
Midues ,
- anybattemp
- water heater claim specification service requirements:
- total dissolved solid | recommend anodr replacement
100-600 | 3 years
601-1000| 2 years
Overs 10000| 1 years

1.7 switch off the electricity supply at circuit breaker marked geyser at distribution board.

- the electrical connection is at the electrical cover plate at one end of the electric water heater the electrical cable from the distribution board must be a minimum of ,2,5 mm thickness.
- remove the electrical cover plate from the water heater.
-the isolator switch is already connected to the thermostat.
-pukk the electrical cable through the hole at isolator switch using ferrules crimping onto the bare wires.
Connect the earth wire to earth stud ensure that earth wire is long ,,

- an isolator switch incorporated into the cover ,electric water heater.

Specifications: in compliance with sans 10254 installation

- electrical supply to be connected by qualied electrician Min ,2,5 mm cable,,
Balanced pressure cold water multiple outlet , cold water inlet
Frome ,,vaccum ,300 mm height cold side ,copper bonding strai ,hot water outlet
Hot water ,,safety valve 600kp,, hot water supy to multiple outlet

-;potentiometer :
Operating time settings potionmeter
Brightness level settings potenmeter.
- ligthning output control.
On power on the detector switch it's circuit on for ,39 seconds the ligthning output is switched on when the brightest level set by potentiometer,is consytoo low and movement is detected ,after detection the ligth remaining on the timer setting ,1 and 2 the operating time and the brigtt levek in order to facilitate set up by the user detector are Pre set with a default settings suitable for standard installation yrafft area corridor.
- operating time , from 5 second to 15 minute.potentiinmetet ,1 is Pre set to a default value approximately ,3 minb,
- brightness level from,5 to 1000 lux potentiometer ,is Pre set default value approximately ,200 lux .
- installation for optimum detection it is desirable to follow recommend high of installation from ,2,5 to ,3,5 m..
Prevent disturbances from the environment source heat ventilation ,provide a minimum distance about ,1 detector it controlled ligthning..
- troubleshooting:
Unwanted switch switch on of ligthning point:
Check that the detector is not close to a hear source ,or under a direct ligth above a ventilation grill.
- the range of the detecttbis too short..
_ mounting of EE804 projecting ,ceiling ,,
Flush mounting box diameter ,69
Mounting:
1 unscrew the protecting cover,
2cable the detector according to the recommended connection diagram.
3. Fix the detector with the screw provide ,4 mm
4. Setting ,set potentiometer,1 and 2 according the desired value if different from preset default value.
5. Screw the protecting cover...when mounting this product to a ceiling with a moulding flush mounting box is not need just smash and removed both

walls ,provide for that purpose on the detector , 2 walls , have raceways profiles ,, mounting ,celling , e = width ,5<e< 20 mm ,, diameter ,75 ..
- mounting .
1.cut out is 75 mm diameter hole using a crown saw.
- cable detector accordtto recommend connection diagram then on the transport connector block protecting cover .
- set potentiometer ,1 ,2 according vti value if different ,present .
- fix the detector by pushing both spring up range..
-EE804 operation auto ,off
Switch interrupter , N,230v ,, S1,,switch ,,S1 open= stop / S1 ,S1 closed = automai mode ,,
- ligthi load , incadencsnt ,halogen 230v, 10A,AC
Halogen ,ELV,,12 or ,24 V via 1000W, ferromagnetic or electronic transfory, fluid compact. 509VA ,, parallel non 10×29W, compensated fluorescent tubes , electronics ballast. 8× 58 w

_____

- technical features;
Electric characteristics
- supply voltage : 239V, 59 Hz
-consumption with no load:12 W
Voltage free contact
-functional car:5sec/ seg,15 min
Ligthning output operating 5- 109 lux
Brightness level: 2,5 m
Recommended installatt heigh : 3 m approximately installed product height ,2,5 m.
-recommended install height: screw ,diameter mm peg,protecting cover ,connector block ,parafusos, diagram cailha,Tampa
-product in parallel: am
Operating temperature t: ,,O°>+45°C
Storage temperature: -20°c +69
Class of insulation : clIU
Index of protect: IP
Fire resistance :750°
Standard , IEC : 605669-1,,IEC 60669-2
Connection capacity , 1mm sq>2,5 mm
Product descryand work principle,detector ,EE804,andEE804 are movdmy detector built ligth sensitive function intended for used interior traffic area ,,device detect infrared radiation associywith hear emitted by moving body detection is by Pyro electric sensor located under lens, fixing soringd

_____

Ligth orocess

- instruct installation for top push or front handle single flush valve.
- flush valve assembly:
Clip valve assembly ,2 on to cistern outlet ,1 ,
- Clip too bracket ,4 to adjustable overfkt stem ,3m
- fill cistern up to the nine litre water mark ,where applicable.
- adjust overflow stem until top bracket ,4 touches the water ,
- clip adjusting rid ,6 on top bracket ,
2.manufactures recommendations.
The above assembly instructions is for a nine litre flus in a nine litre cistern ..
-if a six litre flush is required from a nine litre cistern for water saving purpose ,simply Djust the Intel valve float to fill to the six litre mark ,but leave the overflow stem ,set at nine litre water ,,
- push button and housing assembly.
A) fit button housing ,9 to cistern lid and hand tighten but ,
B ,clip Ricker arm assembly , housing stern ,marking sure the Ricker arm is the rigth way up
- place conical spring ,10 into housing large side down ,
- press push button ,1@ all the way in until it clip through the housing stem .
- slide completed assembly into adjusting rid ,6:,,

Part: slide lid and assembly into adjusting rid,,too push or front hand ,,Djusting rid ,clip ,,top bracket , adjustable overflowing,valve assembly,citer outlet ,,push button ,conical spring ,,push button and housing ,,Ricker arm assembly,front handle assembly. ,,cur flush pipe to suit from dimensions shown above ,,posit cistern on to flush pipe hand tighten cap nut ensure cistern is levek Mark.

_____
- installation instructions for fill master inlet et valve :
Fill master : assembly ,part list working pressure up to 14 bar .. adjusting screw float arm flost reservoir, telescopic Steve sealing boot ,, insert valve into cistern with sealing boot inside , position valve , ensure that reservoirs not in contact with the cistern and is able to move freely ,place the white washer on the outside of the cistern fasten the backnut but do not over right..,, telescopic stem , primary adjustable the desired water be ,25;below,,fine tuning final , adjustable screw ,water level ,reservoir xisterv
-; bottom inlet fitting instruction ,,
1 turn off water empty cistern and remove old inlet valve , insert valve body into cistern ,,
2 all moving part must be kept clear from cistern walls and li,,faster but connect water inlet pipe please do not use plumber ..
4 .to adjust the east levek rotate the height adjuster clockwise akk the way ,then press or pull on the wings provided to adjust the float holder to

desire ,wings for rali lowering floar hold ,,you can know ritade heigh adjust antu clockwise tikj stio againsvfloat hol the the installer now turn on the water supply ,,if the installation is not completed as legally required in term of part , 18 control plumber and plumbers work ,as set out the national building regulations and building services act 2977,revised 2901,the manufacture warranty will become invalid..

4: hardware kit kit installation , 2× bolt ,2×✓vit,2× boutrn ,,.tornillod
-2× sta tire nuts
2× bushing,,
2× plastic washers,rondelle ruber
Tools required
- screw fixing bolt into Ging fissare le city cerniers ,Visser Les tiges Dan's Les pied de la charnier ,,
- push bushing onto the bolt ,,
Place washer onto the ceramic and the ,,

_____&&
- technical installation guide :cobra
Single basin mixer:
Tools required: adjustable wrench or open , ended wrench.
- notes :

1.9 Basic requirements:

- balanced pressure: hot and cold water pressure must be of equal pressure to all mixers mixing point showers or hand showers this is achieved by supplying the cold water on the low pressure side of the pressure control valve .
- valve settings and colour codes:
4000kpa valve, red label. ,,600 kpa valve green label..
Anti siphon loop : anti- siphon loop is required on all systems balanced and unbalanced the horizontal supply pipe must be higher than the top of the cylinder the balanced cold draw - off must be connected on the downstream side of the pressure control valve..
- drip stray : sans 1151 specifications for hot water cylinder hwc ,, requirements that the cylinder be mounted within a drip tray and the vacuum breakers and all other valve are installed over the drip tray..
- expansion relief valve : normal expansion is approximately ,,1,5 % to 4 % of volume of water heater per hearing cycle..
- the drain relief pipe must ..
- be piped at decline.
- not interconnected with the safety valve drain pipe .

- not discharge into the drip tray.
Discharge with visible and not be a potential nuisance.
- be protected against Frist ..
- expansion drain pipe to be braced .. expansion will take place water is heated..
- vacuum breaker : to prevent geyser back siphon geyser collapse and to facilitate servicing vacuums breakers must be fitted to the inlet and outlet of hwc ..
- general requirements:
- all pipes must be flushed clean before putting the system into operation the expansion relief valve must be removed for flushing purposes.
- water flow must be in the direction of the arrow on the multi valve body.
- valve must be easily accessible for service.
- allow a minimum clearence of 200 mm for parts removal.
- do not install a stopcok or non ,return valve between the hwc and the multi pressure control valve.
- do not install a stopc or non return valve and the vacuum breakers on either the got or cold side ..
- to minimise temperature change and excessive drop in volume ensure that supply pipes are adequately size.
- the inlet pipe size to multi valve is to be the same size as the connection fitting on the valve .
- a stainless steel strainer is fitted on the cartridge.
.
Maximum inlet presst ,2000kpa ,,
The pressure control valve is factor preset and requires no adjustments.
- pressure rating ,4 and 6 bar ,,
- operating temperature , max 60°C

_____
- checking and cleaning :
When to service:
- insufficient flow rate of water.
- continual drip through expansion drain.
2: disassemble of the valve :
- turn off water suy to valve by means of the integral isolating valve..
- unscrew and remove the presst reducing ..

3: cleaning.
- only use cold water for any cleanings works.
- rinse the main dear area.
Pull the strainer mesh off the cartridge and rinse with water the push it back on ..
5 .reassembly of the valve :
1.screw the cartridge back into the valve body.
- there must be no gap between the valve body and t shoulder of the cartridge cap.

- the valves pressure settings will not be altered with cleaning.
- turn on the water supply at at integral isolating valve..
- replacement parts :
Khn3-102c| cartridge for pressure reducer 200kpa..
- khn3 -104 C ,, cartridge for pressure reducer ,400kpa

6. Fault finding:
Fault |probable cause|recommended sol
A- excessive leak from expansion drain pipe hot water | requirement for balanced pressure to mixing points is not adhered to incorrect or unbalanced installation.| Balance hot and cold supply if possible fit spring loaded non return valve after vacuum breakers to hot water outlet of the xyly.

B- excessive leak or continuous drip from expansion drain pipe cold water | geyser thermostat is not switching off | switch off electricity supply to geyser ,turn on hot tap for few seconds .wait five minuy and check whether the drip has stopped if not the valve requirements service or cleaning the expansion relief valve contains replaceable valve seat which is made of stainless steel..

C- full bore flow they expansion drain pipe but no cold hot water when installation is complete| there is foreign matter on the main seat the main seat is worn incorrect valve direction | clean the valve ,replace cartridge..reverse the valve body water must flow in the directly of the arrow on the valve body..

D- insufficient or no cold hot water.| Strainer is blocked stopcock in main supply is partly or fully closed inadequate system pressure.| Clean stainer ,open stopcock fully see installatt requirements.
E- water hammer during valve opens..| undersized piping incorrect valve installation the piping is loose air is trapped inside the pipe excessive pressure drop in the system |™increase pipe size ,reverse valve secure all piping fit autmyair release valve increase pipe size.
F - vibration in system , excessive water water velocity loose washer plate assembly in the stopcoks,faulty washer in the Tao ,stopcokbor mixer ,inlet pipe under ,sized

_____
- fitting instry for Pratley flameproof compression cable glands ..
Gland selection chart :
Cable diameter. | Gland size
Min. Max. |
8. 10,9. | No..is
11. 13,5. | No ol
13,6. 14,5. | No ,
_____&__

Certification
- Ex d ,I/IIC,,, SANs 808
Exe ,I/II. SANS 60079-0
Suitable for use in zone ,1,2,29,21,
Group ,U,IIA,,sabs test report ,no 777/8769/. Measure cab cable diameter : measure cable ,with vernier to ensure that diameter is not to small for the gland ..
- fit the gland , prepare the cable end ,,
Screw the assembly gland as supplies ,insert the cable as shot ,spanner tigthen the ,,

_____
Installation guide solenoid valve types EVR,,22 normally closed/ normally open NC / NI

Refrigerants..
R22 / R407C,R404A/R507,R410,R234,, EVR,,NC flare ,,NX solder ,,flange,,
- mounting directions ,, soldering..
- coil ,and obring: A be sure that the o ring is in place ,b sticker applier only ,,warning never switch on power to the coil when the coil is dismount from the valve otherwise the coil may be damaged and there is risk of injury..

 ,, electrical connection:
Max coik temperature
9w.ac.Evr. / tmax = 40°C (. @50° F)
10/12 W.a.c. | tmax =™80°c(175°F)
20 a.dc. | tmax = 50°c (229° F..
10.S.ac. | tmax=55°(139°F..

Media temperature
Min medium temperature| t Min = -40° c

Max medium temperature| tmax = 205°c (221°F..

- max . working| 44,2 bar | 35 bar | 32
Pressure PS / me| 656 | 508. | 464 psig
- max operating diff . pressure Mood .

_____
- mounting ,dismounting of top part ,
Type : NM| kpm ,,
Placement of valve seat ,,
Dismounting gasket and supporting ring press and tsisr

Surface mounted box ,,

Unshit,,half shielded ,full shielded..
-30 mm step approxt ,30mm the cable hacker and separate the wire info pair,,
He ,342 series provide two entrances for cables please Pre insert the cables before installation.
- completed wiring instructions for
Pin 1 .white / green
Pin 2 green ,
Pin 3 white / outage
Pin 4 blue
Pin 5 white ..
Pin 6 orange ,
- folli the wiring instructions and IDX color xodiy to punch the wires by ..
- fasten the cable holder Nd mJe sure the fouk braid shiejd make contact with the cable holder ..
- place the upper cover to comply the installation

Experience: technologie
Viking Technica data:
@. Description: Viking early suppression pendant vk502 fusible element type freezer deflector heater area , 202 metric sprinkler producer penetration fire plum , special supply insulating boot asssblie ,,sprinkler requirements single row double open rack storage sprinklers , material..
- listings and approval:
3. Technical data :
Specifications: tube diameter, #-11/26"(43.86 mm).
Minimum operating pressure: refer to NFPA ..
Maximum working pressure : 175 PSU , 13 bar factory tested hydrostatically to ,500 psi ,,34,5 bar ..
- connection , 2" grooved , ,, 2-2/2" NPT ,,nominal ,,k- factor ,,
- metric measurements show pressure is measured in bar when pressure is measured in kpa divide the metric k factor .
- deflector diameter : 1-3/4 (44.5 mm)
Overall length : 36-5/8"(939 mm)
Pentent pending ..
Outside diameter: 6" (152 mm,,
depth :1"(25mm) .
Sprinkle frame casting: brass UNS ,,C84400
- deflector , phosphor bronze ,,
- seat : brass ,uns -
Belleville spring sealing assembly , nickel both side ..
Compression screw stainless steel ,uns s 3 603
Trigger and support , stainless steel uns .uns ,- S3 31699

- fusible element assembly beryllium coated polyurethane.
- tube , steel tube ASTM ,A513
- orife brass .
- inlet brass ..
Support internal brass..barrel steel tube e, ASTM electrodepositr epoxy base finish ..boot assemblies.
Seal : neoprene , EODM..over speak ring under seal ring rolled ..
- 10 screws ,stainless steel
- ordering information : also refer to the current Viking pricelist.
- order esfr pendent first adding appropriate suffix to the sprinkler finish the appropriate suffix for temperature rating ,
-sprinker base part number for ,2" grooved ,14909.
- sprinkler base part number for ,2" 1/2 NPT .sprinkler base number for ,2-1/2 bso threaded ,,
- finish suffix brass= A.
Temperature suffix ,F°/C) 165°,/74 =™

- installation: manufacture tested rigid requirements..NFA
-sprinker temo| sprinkler nom| max Amb|
Classification|temp rating | celling temp
Ordinary| ,265°F,(74°c)|. 100°F(38°)
-based NFA ,
- installer ,2" groover run of mLkea le ductile iron ,meet ansu ,class ,150,,ANSIB 16,4(class..
- operational: during fire conditions the hear sensitive fusible element assembly disenger release the internal part the waterway water flowing through the sprinkler orifice strikes the sprinkler deflector forming a uniform spray pattern to suppress the fire..
-Approval chart : ,A1X. ,,temperat ,finish
Base part| sin| connection| Nomi kfac| listen and approval

- base part| sin | connect| us| metric| ..
Base part number show for complet part number refer to the price ..
- design criteria :
UL listing : requirements,
System type , esfr dry spriklkers ...
- maximum riid or celling skipe: 2 in 12(157 mm/ 9,5 degree.
- maximum position: approved for use only align deflect
- deflector position ,,
- deflector distance from wakes .
- maximum distance between sorinj

Number
- inspection,test and maintenance: own protection device proper operating conditions,,spring must be inspected on regular basis for corrosion mechanical damage ,paint inspect corrosion atmosphere water , the

sprinkler discharge patter is critical for proper fire prot..
7.availability .
1. Description: Viking consider.
2.listings and approvals:
3 technical data : pressure raty: max allowable water working pressure is 175 psig ,(12 bar) unless rated and special for high water pressure ,250 psig ,,,17,2 bar
- sprinkler identification: indentation number sin ,model letter ,
- available finish : corrosion resistant .
- available temperature rating :
- k- factor : Viking , avaikables

_____
Sprinkler are fragile handle ...general , handling and storage: store cool ,,.for pre- assembled drops: protects sprinkler during ,,for recess assemblies..-sorinjler installation :

1**.10 Construction chemicals dura flex.**
Cementitious flexible waterproof slurry..
Description: dura flex is ready to used flexible slurry based on a special synthetic dispersion and blend of selected cement mixed with carefully graded..
- uses :
Protection and repaired of balconies terrace hauch concrete riadc bridge.. Water proof of new and old building.. waterproof of tanks contains and water reservoir.
- advantage: excellent waterproof barieer effective on negative or positive ,high bond strength ,excet freeze thaw resistance ,excellt resistance ion penetra ,bdus trowel or spray applied reliable , application self curring low in place low in place ,non food ,,
- bonding priming , surface preparation: all surface that to receive the coating must be free ..approved ,water ,,less than 1 mm,wide,,cracks which are less ,0,3 mm in width can up to great than ,0,3 mm ,, 8007:1987 British standard code ,o,3 mm in width chassed out ,4 mm in ,15 mm

---
Typical physical propery
- nominal coverage | 2 kg / M2/1 mm thick ,coat ,2 coats requirements.
,- pot life ,@0°C-2hrs,,20°C-1hoir,,.
- hardening time | recoated ,26 hours resistance to mechanical stress ,3 days fukk cure ,7 days.
- resistance water pressure| attained after 7 day positive pressure ,10 atmosphere, negative pressure ,4 atmosphere .

- mixing: it is easy to use a mechtmixer such electric driller suitable paddkr,,fill approximately three quarters components,,blade design ,, fill approxyquartet of components liquid continuos, components B ,for horizontal surface such the base of reservoir the remaining components applicat sufficient components suitable,finely disperse resin compyimoart adhesion to concrete plaster natural stone , weath it degree cracks up to ,0,2 mm in width ,,
- coveragy: nominal coverage rate : 8m3 / 15;kg for ,1mm wet film thickness coverage wastay factor variety and nature of posst substra pratical coverage , 2kg/ M2/mm applied ..
- brush ,using block ,,2-3 mm surface allowance,
- cleaning : tools brushes and mixit equipment be cleaner immediately after and before material has set ..
- Protect on completion:
- be tiled over , ..painted ..pva

- temerat and relative ..model specifications,:
Packing ,handling storage ,life 6 month

Installation instructions: ,0,6 m ultra high performance antenna.
- this document covers installation installation of ,10,5 GHz and ,26/27/28 ..
Antenna. | supported idu
- 10,5 GHz 60cm. | vs2,vsg
- 27w(26,27,28ghz ,60cm |
- before installation ,
This instrument booklet is for the installation of ,a0,6 m ultra high performance.micriwave antenna.
- installation maintenance and removal of antenna system should be carrier , qualifition experience...
1. Requirements for installation.
1.2 mounting pole
-Tools required for installation.
-torque settings for fasteners.
- open the package and identify .
-mount antenna assembly to .
- antenna installation.
- attach ..
- identify the antenna adapted type.
- lubricant the antenna o,- ring .
Mount the odu to the antenna.
- antenna alignment.
Azimuth adjust elevation.

_1 requirements for installation.
1.2 mounting pole.. microwave antenna can be fixed to a mounting pole not supplied a diameter between , diameter 50 mm and ,114 mm..
2.2 tools required for installation.
26 mm open ended spanner used..
Torque spanner ..
1.3 torque ..
Screw/ bolt size | torque ..n.m
M10. | 28
_ open the package and identify parts ..
Antenna assembly | ..
- make Corse elevation adjustabmeny ..
- to make coarse elevation loosen bolts ,
- use bolt holes. | Range of adjustment.
1and 3 | -15°to +15°
1 and 4. | +5 to 30°
2 and 3. •. | -30° to -5°
4. Mount antenna assembly to mast ..
4.1 antenna installation....
The antenna is suity for mounting on the right hand or left side of pole the diagram show the mounting ..
Left hand installation view .
5. Attach odu antenna.
- 5.1 identify the antenna adapted type...
- lubricate the antenna I ring ..
Apply a very small amount of silicon lubricant supplied to the o rung located on odu part of the antenna ...
6.2 elevation adjustment.
Ref .. terminal installation and commissioning

_____
General dynamics,Satcom technologie.
Assembly .
1,2 tier feed system ..
Sect ,,title
1.0 general information ..this manuej assbly and installation , 1.2 meter will operate in ,band frequently high efficiency time successful
2.1 unpacking inspection : the system container unpacked and inspect .
2.1 freighter damage..
,1,3 material missing or Damaged
1.4 mechanical installation tools
,1 fees support installation.
Feed support addy part list.
Feed support assembly.
.- feed installation..
Feed asst part list ,feed assembly,feed installation ,feed installation .
- mechanical install tools..

_____
Hardware size | saw wrench size | metric wrench | max recommend torque
-8 mm bolt | n/a| 13mm | 15 Fr ,- lb ,,8,1 n.m
-5/16" bolt| 1/2",,| 13 mm
- the minimum torque applied
- feed support assembly.
- item | part | description| qty
1| varie | 1.2 feed rod | 2.
2| varie | 1,2 M fees support tube .
3
2.1 feed support assembly...
Sect installation:
Feed assembly .
Item | part | description| qty
 1 | 0183-478| 38° kubanf feed horn assembly.
926° I'd oring..
Internal tooth lock washer.
Screw ,6..
Silicone grease ..Allen wrench
Step ..
Insert the - o ring
_____'
Feed installation
Item | part | description ..qty
NEC adapted bracket...5/16"-18×2,58",,
Narrow flat washer.
Lock washer...

- waterproof protection, from radio ,40 mm high power speaker voice purifying function, scrambler function ,,Professional transceiver ..Troubleshooting,maintena

- for construction :
Revision:
Rev| date| by | description
Client ,,.project ..
- drawing : CCTV LAYOUT ,,,
Date April ,
 scale : 1:59..

_____
9..1000.....2000.....3000.....4000...5000

_____
North ,wast South ,east
- camera no | position | mount | coverage

-c1| entrance / exit door| ceiling panel| person entering existing shop

- c2 | ATN / forecourt | ceiling | overall view to condolas ,ATM
-c3 | retail area | ceiling panel| chiller door ,retahl area
C4| retail area | ceiling | public view to cashier area
C5 | servery area| ceiling panel | view to condolas
C6 |retail area ..
C7| Cashier access door | ceiling | view of personal entering cashier cubicles
C8 | cashier internal | soft Buk
C9 | cashier cubicles | ceiling | view to office entrance ,exit door safe activities by .
C10| prep area | ceiling panel | general view to park..
C11| store area | ceiling | view to service lobby freezer door.
C12| servery area | slab soffit | view to store room
C13| O/cubicles|cskinf panej | view to pump attandance Cybil
C14| cash management| external wall| view to cash management..
..CCTV to cash management,staff tlt,,store,,severy ,are,,cashier's cubik ,ceiling height = 3000mm

---

- LIGTHNING PROTECTION OF CANOPY TO BE PROVIDED.
BGB SPECS TO BE ADDED LED
- canopy electrics ..
-under no circumstances are PVC conduit to be installed uPVC cabling to be used ,, certificate issued
.
All cabling to be strapped to mUn steel.
Electrical sub contractor to call for steel Engineering line drawing and details.
Cable router from above ,canopy to inside Colum to pump dispenser.signsge panej abovf by electrician ,connecty by signage subcontract..

Copyright reserv versoruu.
- issue for construction:
Rev | date | description| issued.
Issue / revision|
Key plan
- client ,
- consultant ,versorium consulting electrical engineerings.
- project | description|
-Plan description: built power layout.
- Drawing number :
1505/E03/00
Scale: 1:75 ,, design schoebN.drawing size = A1: drawn , drawing stays : issue for construction
---

Power outlet legend.
General description of circuit information
Indicate circuit with utility supply,.
- indicate circuit with generator supply backup ,.
-inducate circuit with ups supply backup...
-"x" indicated socket installation height in milieter away from final floor levek ,"PS" shall indicate ,indicate installed in power skirting / "did" flush in floor / "CV" ceiling void.
"Y" indicated socket supply type ,"n normal ,"g" generator / " U" ups.
"Z" indicated socket isolator installation ,"f" flush in walk) "s" surface,"CV" ceiling void.
"So" indicated weather proof IP 56 socket isolator if indicated.
"A" indicated isolator ampere rating requirements.
- 230,Pin single switch socket outlet found earth pin
-230,3 Pin double switch socket outlet with doubt earth pin.
- 230 ,3 pin single ,socket outlet with ,90° shaved earth pin ..
230 V,3 pin double switched socket outlet with ,90° shaved earth pin..
230v,2 pole isolator outj.
- 400v 3 pole isolator outlet..
Note :
All outlets shall be Crabtree diamond range
- outlets shall be supplied with suitable sized wiring as indicated on each respect single line diagram.
- isolator position for mechanical ,/ hack equipment shall be confirmed on site with the installer..

- electrical reticulation legend
- welded wire mesh cable tray hot dip galvanized steel with medium duty rating ,wire diameter ,4,9 mm ,side ,wall: 50mm,2 wire ,completed with purpose made bend,joint unistru support ,threaded rods,nuts,bolt to complete the installation..

- wiring channel - O9000(127×127×76mm) galvanized steel and galvanized steel cover completed with hanger bracket,threaded rod ,nut bolts to complete the installation wiring Chanel in retail only shall be power coated black.
-diameter ,110mm sleeve ,nextube kableflex ,color black completed with purpose made joint and spacer kit for multiple sleeve in single trench installat,all sleeve must be provide with suitable rust resistant draw sure.
- power skirting ,2 channel, 3 compartment ,steel ,powered coated with each section shall be proviy with ,5× diameter ,25 mmmcinxuit to ceiling void ,2× diameter 25 mm for power ,2× diameter for data ,/ @×diameter for telept..
- diameter ,PVC conduit link,installed flush in brick or partition wall in not indicated differently in drawing.
- diameter ,60 mm round draw box ,installed flush in brick or partition wall if not indicated differyon drawing all indicate installation height in millimetre

away floor levek..
- diameter ,diameter round draw box for emergency stop saitt fuel service,installed flush in brick or partition wall if not indicated diffently on drawing ,1659 affk completed with ,diameter PVC conduit to pump and tank db..
- diameter round draw box for combined siren ,strobe light installed flush in brick or partition wall if not indicated differently on drawing,14500 affk completed with ,diameter PVC conduit to ceiling void controly.
- 5× diameter ,25 mm PVC conduit from ceilit void retichy systems to power skirtt,2× conduits connected to power wiring Chanel for electrical circuit ,3÷ conduits ,connected to small power cable tray for data services.
- low voltage distribution board ,surface mounted or floor standt reference each respect single line diagram for details.
-electricL draw out ," EDO" indicate electrical draw pit ," EGBP' indicate electrical gas break drawn pit ..
- gas break manholes shall be fibrelite type complete installation per total specifications.
-generak electrical manhjles shall constrt ,@0mm deep and allow for sleeve access into the draw pit no less than ,110mm from the bottom of the manhole.
3.sleevs shL installed R respected depth sleeves to ,4000mm deep trenches in build shall have a slow bend from specified depth over to access trench the bottom of the sleeve shall be si installed
- alk electrical work in hazard area shakk be carried by master installation electrician includy KK gas break draw pits and specific sleeve connecty made into these draw pits .

Nov
13)

- E-4 ELECTRICAL LEGEND,NOTE AND SPECIATION../ cpd
A- All electrical work and installation shall comply with ..
- national building code
-etre code of the Philippines.
- requirements of the bureau labour .
- electrical installation shall be under the direct supervision of duly registered electric ..
- All ligth fixture mounting hard shall match and be coordinated with the new or existing Celine system type fixtures.
- ligthi fixtures will fluorescent ..4-9 aboct finished floor level.
Mounting height wire device .and panej boaf shall be as convenient .
outlet ,- 0-5 m finish ,panel board ,cabinet ,1,8 m..
- provide founding and neutrat wire to all outlet ligth circulum.all non

current carrying metal ..

- LEGEND.
- water proof outlet duplex receptacle.
- cle flus mounted in wall .

Convenience outlet ,duplex

- receptacle mounted including.
- special purpose outlet .circuit breaker.
- ceiling flush mounted ,34 w.
- 3-PCS,,we,led,bulb,pendant ,
- S switch ligth single pole..flushed one switch none gang ..
- 2S switch ligth ,2 poles none ,gang ,,
- 3 switch ligth in one gang plant switch ligth ,3 poles , switch..

_____

Cpd ,,Electrical installation in the building designing designing.

- introduction equivalent.

Circuit of supplying line connection of two port..
R=£×L/S... I=V÷R..
Resistor:,,R(T)=To(1+alpha+(T-To)
Material ,coefft.
Flux =L×I ,,,
WL=L×I.I
E=derive flux ÷deriver time,,
E€=d.flux /St=L.di/DT...flux

- inductive reactance ,XL..

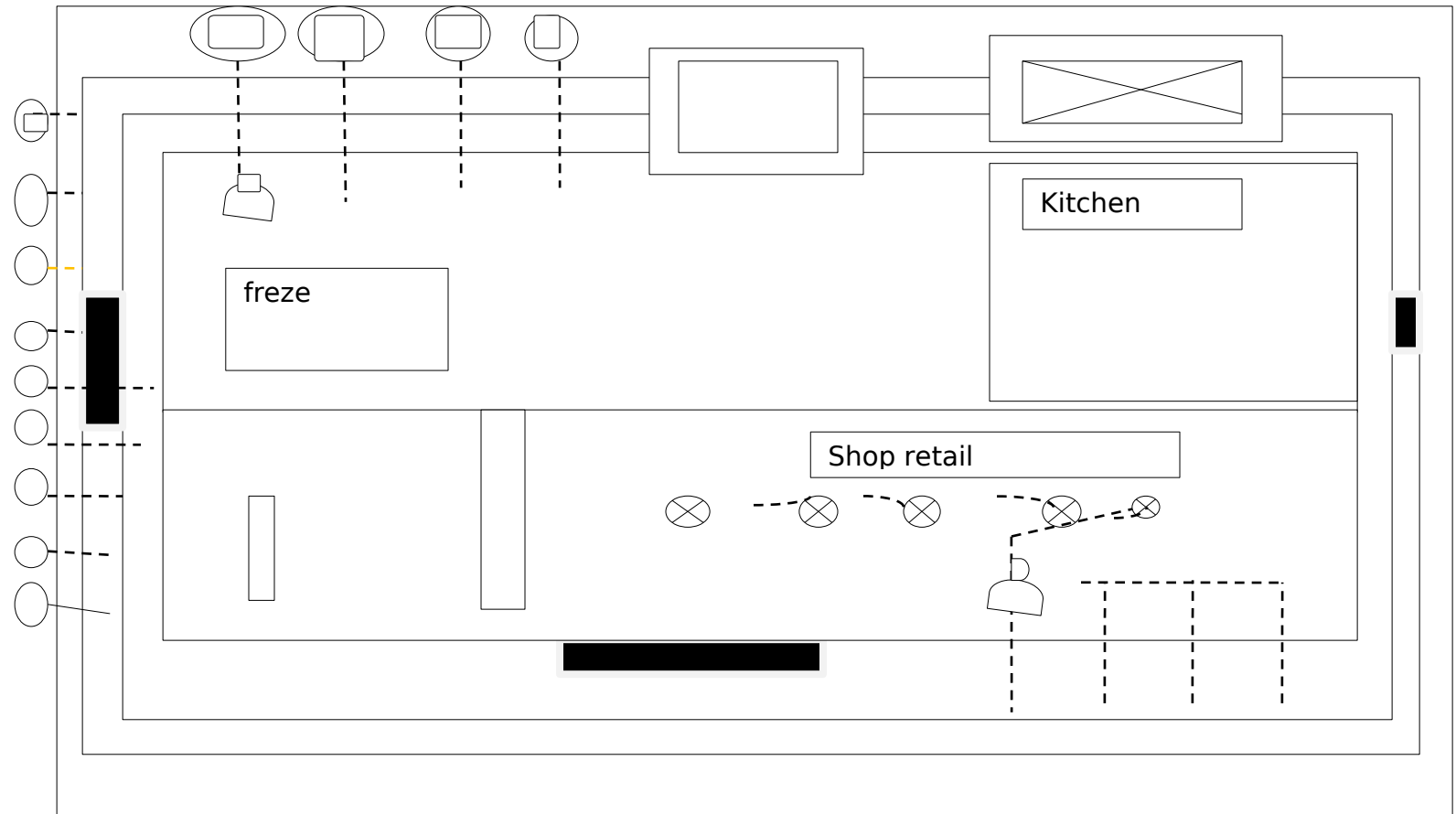
I.eff=Veff/XL,, XL=w.K=2π.f
Capacitor: ,,A=W.L÷R.K,,,C=C×.S/d..
Charge q(t) store capacitor ,,
C= €.S/d.. dielectric construction..
q(t)=C×V(t)
(V×t)= Charge ,,,q(t)
I(t)=dq(t)÷dt=d/dt×(C×V(t)=C×dv(t÷dt.

-Energy store capacitor..

W.C = C.V.v/2..
I..eff=2πf.c.eff...
XC= 1/2π.fc..
V(t)=VR(t)+VL(t)+VC(t)
V(t)=R.i(t)++L.di(t)÷dt+1/c.integral..i(inte) DT..
V(t)=R.I(t)+Ldi(t)/St+1/c.(integral .t to infin (t period)d.v
I(t)=i.eff×√2.sun(et+alpha,1)=i.m[i.eff.√2.e.exp I.wt+alpha..
= I'm [i.eff√2.| alpha .ie ..at.)
I(t)=i.eff.√2.sun(et+alpha,@=I=I.eff= I EFF..
V=V.eff= V.eff
V=R.I+jxCI-JX.e.i
I=I.eff=V.eff÷R+(xc-xc=V.eff÷R.R-xL-L..
f(-arct..xL-xc÷R.

I(t)=√v.eff÷R.R.+(xL-xc).exp 2×√2.sin(at+alph-artgxl-xc/r..
Z=zR+ZL+Zc=R+jxl-jxc=Z.s.i
Alpha= art . tag ,xl-xc÷R..
Y=1/z=1/z.e.i=y.e-
Z=R+jx@..
R=Re|Z|-resistancd,,
X=|m,|Z|- react..
R= Re| Z|- resistance.
X=| m|Z|- reactance,,,
Y= G+jB..
U(t)...I(t),,R,L,c
V(t)vrn.√2 sin (w.t + alpha v)
I(t)=irn.√2.sub(at+alp.i)
Inst..O(t)=v(t).I(t)

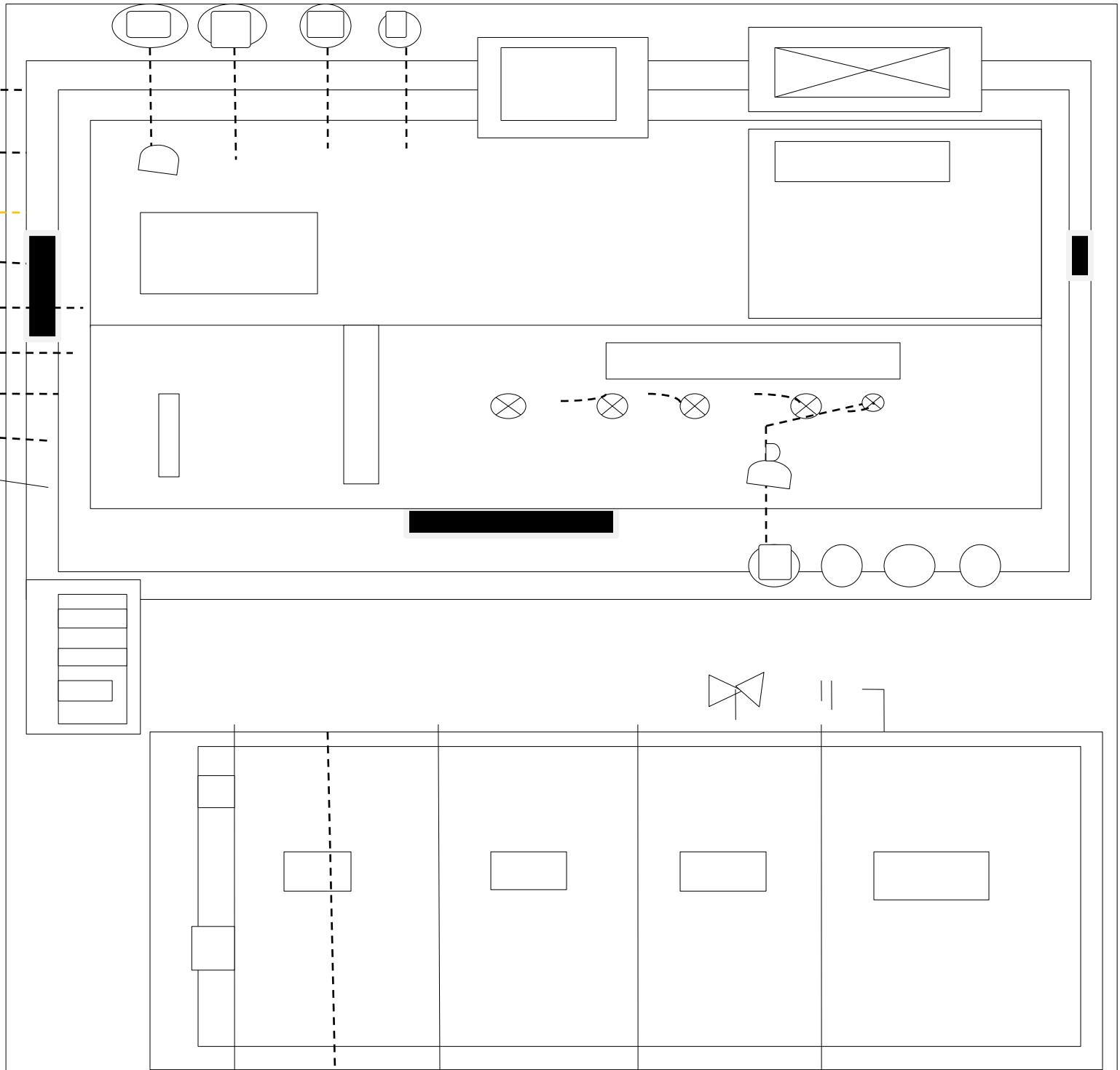
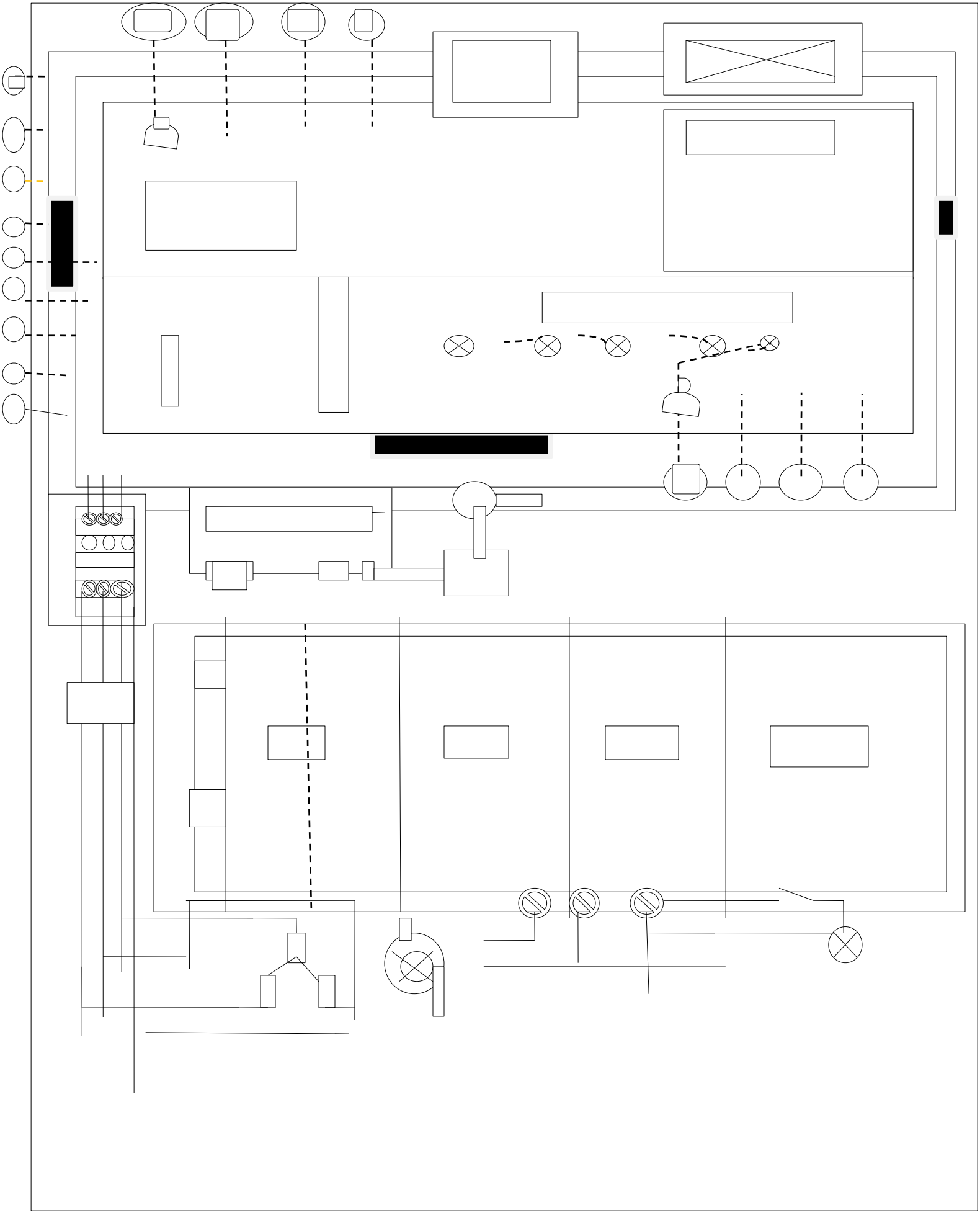
-2Vrm×Irm.sin(wt+alph,,v).sin(wt+alph ,1)
=Vrm×Irm.cos .alph(Pv-alpg)
+Vrm.Irm .cos(2wt+alph.v+alph)
P=1/T..(integral .t to 0) DT= Vrm.Ims.cos.alog
(alph.v-alph1)
Q=Vrm.Irm.sin(alph.v-alph.1)
=Vrm×Irm×sib,along..
Of=P/s=cos(alph-alph1)
ΔP=P1-P


Kitchen
freze
Shop retail

Grou

nd legend

Power outlet	Legend	

Wiring diagrame submerged three phase motor

Camera	Position	Main	Coverage